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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,109	07/15/2003	Alan Ray Albrecht	200310882-1	8617

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EXAMINER	
SINKANTARAKORN, PAWARIS	
ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
08/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/620,109	ALBRECHT, ALAN RAY	
	Examiner	Art Unit	
	Pao Sinkantarakorn	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-12,14,16 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-12,14,16,and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

PROSECUTION REOPENED

1. In view of the Appeal Brief filed on 4/27/2009, PROSECUTION IS HEREBY REOPENED. Detailed Action set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2416.

DETAILED ACTION

2. Claims 1-8, 10-12, 14, 16, and 19 are currently pending in the application.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8, 10-11, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Silva et al. (US 2007/0110078) in view of Shankar et al. (US 2004/0066781).

Regarding claims 1, 11, and 19, De Silva et al. disclose a method of processing a packet sent to a provider network, the method comprising:

receiving the packet via a first user port at a first edge switch of the network, wherein the first user port is an input port of the first edge switch (see Figure 2 and paragraphs 62-63, a VLAN tagged frame is received at customer boundary port P4 of switch 226);

determining forwarding and routing by the first edge switch based on a user VLAN identifier (VID) of a user VLAN tag for the packet (see paragraph 62, the frame mapping logic retrieves the frame's designation from VID field, and also the customer COS value; based on the customer VLAN designation, the frame mapping logic 350 determines the forwarding and routing);

creating a tunnel from the first user port at the first edge switch to a second user port at a second edge switch (see Figure 2 and paragraphs 61-63, providing connectivity between customer networks 206 and 212, wherein, in Figure 2, customer network 206 is connected to customer boundary port P4 of the first edge switch 226 and customer network 212 is connected to customer boundary port of the second edge switch 230) using double VLAN tagging by inserting a provider VLAN tag, including a provider VID, into the packet at a first provider port at the first edge switch prior to transmission of the packet via the first provider port (see Figure 7 and paragraphs 66 and 70, provider VLAN and provider COS value are appended to the frame), wherein the first provider port is an output port of the first edge switch (see Figure 2 reference numeral 302, port P2 of Switch 226), wherein the second provider port is an input port

of the second edge switch (see Figure 2, the input port of Switch 230 that is connected to Switch 232 by way of link 238), and wherein the second user port is an output port of the second edge switch (see Figure 2, the output port of Switch 230 that is connected to Customer Network 212 by way of link 219);

utilizing the user VLAN tag by a middle switch to determine a class of service for the packet so as to provide a user-expected service level in relation to traffic flowing through the tunnel (see Figures 3-5, and 7, and paragraphs 96-97, the frame mapping logic 350 performs a look-up on the port's Ingress VLan mapping table utilizing the frame's customer VLAN to derive a CoS table index value).

De Silva et al. fail to teach stripping the provider VLAN tag from the packet after the packet is received by a second provider port at the second edge switch. However, Shankar et al., from the same or similar fields of endeavor, teach removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch (see Figures 3 and 9, and paragraphs 72-74, receiving on an uplink port of a DT engine, where DT engine is located in Provider Edge device, and removing a SP VLAN ID tag from the packet before forwarding to an egress port).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to replace the method of removing a VLAN tag at a user port of De Silva et al. with the method of removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch as taught by Shankar et al. into the invention of De Silva et al. because one of ordinary skill in the art would have been

able to carry out such a substitution, i.e. removing a VLAN tag at the provider port rather than at the user port, and the results were reasonably predictable.

Regarding claim 2, De Silva et al. disclose a method, further comprising forwarding and routing the packet by a middle switch based on the provider VLAN tag (see paragraph 78, forwarding the frame to the switch 232, which is an intermediate switch);

regarding claim 3, the packet received includes a user VLAN tag, and the user VID is derived from the user VLAN tag (see paragraph 62);

regarding claim 4, the packet received does not include a user VLAN tag, and the user VID is assigned to be a port VID associated with the user port (see paragraph 62);

regarding claim 5, the provider VID comprises a VID of a destination VLAN (see paragraph 65);

regarding claim 6, the provider VID comprises a port VID associated with the input port (see paragraph 62);

regarding claim 7, the edge switch determines a class of service (COS) for the packet based on the user VLAN tag (see paragraph 62);

regarding claim 8, the edge switch determines a security action for the packet based on the user VLAN tag (see paragraph 62);

regarding claim 10, the packet is routed to more than one middle switch before arriving at the second edge switch (see paragraphs 36 and 37).

Regarding claim 16, De Silva et al. disclose a method of routing and forwarding a packet (see paragraph 62, the frame mapping logic retrieves the frame's destination from VID field) using double Q tagging by inserting a provider VLAN tag in addition to a user VLAN tag (see Figure 7 and paragraphs 66 and 70, provider VLAN and provider COS value are appended to the frame) to create a tunnel between a user port of a first switch and a user port of a second switch (see Figure 2 and paragraphs 61-63, providing connectivity between customer networks 206 and 212, wherein, in Figure 2, customer network 206 is connected to customer boundary port P4 of the first edge switch 226 and customer network 212 is connected to customer boundary port of the second edge switch 230), wherein a user-expected service level is provided in relation to traffic flowing through the tunnel (see Figure 7 reference numerals 718 and 728 and paragraphs 16-17 and 78) by utilization of the user VLAN tag by a middle switch to determine a class of service for the packet (see Figures 3-5, and 7, and paragraphs 96-97, the frame mapping logic 350 performs a look-up on the port's Ingress VLan mapping table utilizing the frame's customer VLAN to derive a CoS table index value).

De Silva et al. fail to teach removing the provider VLAN tag from the packet after the packet is received by a second provider port at the second edge switch. However, Shankar et al., from the same or similar fields of endeavor, teach removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch (see Figures 3 and 9, and paragraphs 72-74, receiving on an uplink port of a DT engine, where DT engine is located in Provider Edge device, and removing a SP VLAN ID tag from the packet before forwarding to an egress port).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to replace the method of removing a VLAN tag at a user port of De Silva et al. with the method of removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch as taught by Shankar et al. into the invention of De Silva et al. because one of ordinary skill in the art would have been able to carry out such a substitution, i.e. removing a VLAN tag at the provider port rather than at the user port, and the results were reasonably predictable.

7. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Silva et al. (US 2007/0110078) and Hurren et al. (US 6,788,681) in view of Shankar et al.

Regarding claim 12, De Silva et al. disclose a system for processing packets sent to a provider network, the system comprising:

a first switch configured to receive a packet via a user port (see paragraph 62, a VLAN tagged frame is received at customer boundary port of switch 226), to determine routing and forwarding for the packet based on a user VID of a user VLAN tag (see paragraph 62, the frame mapping logic retrieves the frame's destination from VID field), and to insert a provider VLAN tag into the packet at a provider port prior to transmission of the packet such that the transmitted packet has at least two VLAN tags therein (see Figure 7 and paragraphs 66 and 70, provider VLAN and provider COS value are appended to the frame); and

a second switch configured to receive the packet having at least two VLAN tags via a provider port (see paragraphs 78 and 85, the switch 232 receives the forwarded frame from switch 226), and to determine routing and forwarding for the packet based on the user VID for the user VLAN tag (see paragraph 84, a customer VLAN and a customer CoS value is derived and appended to the frame prior to forwarding the frame into a customer network);

wherein a tunnel is created between the user port of the first switch and a user port of the second switch switch (see Figure 2 and paragraphs 61-63, providing connectivity between customer networks 206 and 212, wherein, in Figure 2, customer network 206 is connected to customer boundary port P4 of the first edge switch 226 and customer network 212 is connected to customer boundary port of the second edge switch 230); and

a middle switch communicatively coupled between the first and second switches (see Figure 2, switch 228 is coupled between switch 226 and 230);

wherein a service level is provided in relation to traffic flowing through the tunnel (see Figures 3-5, and 7, and paragraphs 96-97, the frame mapping logic 350 performs a look-up on the port's Ingress VLan mapping table utilizing the frame's customer VLAN to derive a CoS table index value).

De Silva et al. do not disclose a system for providing a security action of dropping the packet or forwarding the packet to the management software based on the service level. However, Hurren et al. from the same or similar fields of endeavor disclose a system for providing a security action of discarding frames based on the information in

the priority field (see column 14 lines 55-62, where discarding frames in times of congestion is broadly interpreted as a security action, where the step of discarding frames helps relieving traffic in the network, which prevents network failure).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the system for providing a security action of dropping the packet or forwarding the packet to the management software based on the service level as taught by Hurren et al. into the system of double VLAN tagging of De Silva et al.

The motivation for implementing the system for providing a security action of dropping the packet or forwarding the packet to the management software based on the service level is that it increases the efficiency and security of the double VLAN tagging method by discarding frames in times of congestion (see column 14 lines 55-58).

De Silva et al. and Hurren et al. fail to teach stripping the provider VLAN tag from the packet after the packet is received by a second provider port at the second edge switch. However, Shankar et al., from the same or similar fields of endeavor, teach removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch (see Figures 3 and 9, and paragraphs 72-74, receiving on an uplink port of a DT engine, where DT engine is located in Provider Edge device, and removing a SP VLAN ID tag from the packet before forwarding to an egress port).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to replace the method of removing a VLAN tag at a user port of De Silva et al. with the method of removing a VLAN tag from the packet after the packet is received by a second provider port at the edge switch as taught by Shankar et al. into

the invention of De Silva et al. and Herren et al. because one of ordinary skill in the art would have been able to carry out such a substitution, i.e. removing a VLAN tag at the provider port rather than at the user port, and the results were reasonably predictable.

Regarding claim 14, De Silva et al. disclose a system, further comprising utilization of a class of service (COS) for routing and forwarding of the packet that is based on the user VID (see paragraphs 16-17 and 70).

Conclusion

8. **Examiner's Note**: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pao Sinkantarakorn whose telephone number is (571)270-1424. The examiner can normally be reached on Monday-Thursday 9:00am-3:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. S./
Examiner, Art Unit 2416

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416